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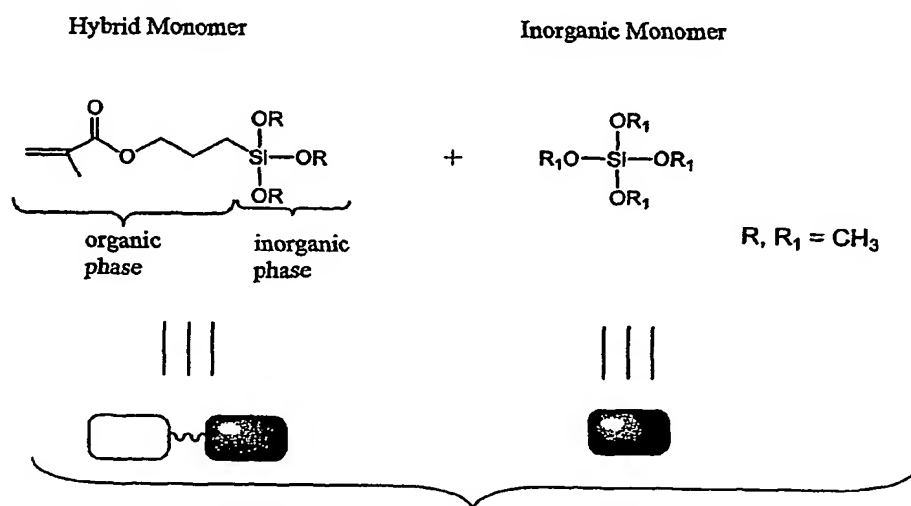
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(54) Title: NOVEL NANOCOMPOSITES AND THEIR APPLICATION AS MONOLITH COLUMNS

**Schematic Description of Monoliths Made by Polymerization Sol-Gel Reactions.**

(57) Abstract: Novel materials for chromatographic separations, processes for their preparation, and separation devices containing the chromatographic materials. In particular, hybrid inorganic/organic monolith materials comprising a polymerized scaffolding nanocomposite (PSN), wherein the nanocomposite contains a scaffolding functionality capable of chemically interacting with a surface of a second material are described. The hybrid inorganic/organic materials have enhanced wall adhesion and increased resistance to shrinkage as compared to prior art monolith materials. The improved adhesion of the monoliths enable the preparation of capillary columns with an internal diameter (I.D.)  $\geq 50\mu\text{m}$ .



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